APPENDIX S

DRAFT WASTE MANAGEMENT PLAN

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WASTE MANAGEMENT PLAN

EL SEGUNDO GENERATING STATION

301 VISTA DEL MAR BOULEVARD
EL SEGUNDO, CALIFORNIA

Submitted to:

EL SEGUNDO POWER II LLC

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Prepared by:

130 Robin Hill Road
Santa Barbara, California 93117
Tel: 805.964.6010 Fax: 805.964.0259

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This draft Waste Management Plan provides guidance for the identification and management of hydrocarbon-impacted soil and groundwater and demolition/construction related wastes during the El Segundo Power Redevelopment Project (ESPR) in El Segundo, California (Figure 1-1). This document is intended to serve as a guide to project management, site management, and field personnel. The guidance presented in this document is based on the findings of the Phase I Environmental Site Assessment (ESA) (URS, 2000), previous subsurface investigations conducted on behalf of NRG Energy and Southern California Edison (SCE), and Chevron's hydrocarbon recovery program (Radian, 2000). The findings of these investigations are summarized in Section 1.1.

Hazardous and non-hazardous solid and liquid wastes will be generated during the site preparation and construction phases. The anticipated waste streams are discussed in Section 5.14 of the Application for Certification (AFC). Demolition of the existing foundations for Units 1 and 2 at ESGS and construction of the new units will require excavation and dewatering to an approximate depth of 20 feet below current grade. Therefore, hydrocarbon-impacted soil and groundwater will potentially be generated during the site preparation and construction phases.

1.1 SITE CONDITIONS

A Phase I ESA of the ESGS has been prepared in accordance with American Society for Testing and Materials (ASTM) Practice E 1527-00 and is included as Appendix T of the AFC. The objective of the Phase I ESA was to identify "recognized environmental conditions" that may exist on the ESGS site and in the vicinity of the proposed pipelines. A site walk was conducted on October 25, 2000. The following areas were observed: (1) hazardous materials and waste storage areas; (2) sumps and oil/water separators; (3) power blocks and their surrounding areas; (4) transformers and the surrounding bedding material; (5) aboveground storage tanks; and (6) fuel pipelines. An environmental database review was conducted to identify sites within a 1-mile radius of the ESPR Project for potential environmental concerns. In addition, numerous previous investigation reports that characterize subsurface conditions were reviewed.

Based on the results of the November 2000 Phase I ESA, the following recognized environmental conditions for ESGS were documented:

- Total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs) have been detected in soil and groundwater beneath the Plant site at ESGS. Quarterly groundwater monitoring is conducted by Chevron in accordance with the Regional Water Quality Control Board, Los Angeles Region (LARWQCB) Cleanup and Abatement Order 88-55 (LARWQCB, 1995; 1988).

- TPH, VOCs, and metals have been detected in groundwater beneath the Retention Basins. Quarterly groundwater monitoring is conducted by Southern California Edison (SCE) in accordance with the Department of Toxic Substances Control's (DTSC) Consent Order.

- TPH were detected in soil within the aboveground storage tanks (AST) farm.

- Oil staining was observed in the bedding material beneath and around transformers adjacent to Units 1 through 4 (polychlorinated biphenyls [PCBs] were not detected in samples collected in 1998.

- VOCs were detected in soil and groundwater near the Hazardous Waste Storage area.

With the exception of the Chevron Refinery, other sites identified in the environmental database within 1-mile of ESGS (e.g., Chevron service station at 601 Vista Del Mar Avenue in El Segundo and the leaking underground storage tank (UST) site on Franklin Avenue in El Segundo) are not expected to impact the ESPR Project (URS, 2000).

1.2 OBJECTIVES

This draft Waste Management Plan was developed to provide guidance for the proper handling, management, and disposal of hydrocarbon-impacted soil and groundwater, and site demolition and construction wastes, during the ESPR Project. The Plan provides information on the following waste management activities:

- Soil and foundation removal to a depth of approximately 20 feet below ground surface (bgs) in the vicinity of the powerblocks

- Soil characterization

- Segregation of soil for offsite disposal and onsite reuse

- Offsite disposal at a soil recycling facility, Class III landfill, or Class I hazardous waste landfill

- Preparation of a construction dewatering National Pollutant Elimination Discharge System (NPDES) permit

- Dewatering to lower the groundwater elevation approximately 14 feet to facilitate the removal of foundations for Units 1 and 2 and the placement of new fill material in these areas

- Installation of a groundwater treatment system to temporarily treat groundwater

- Groundwater discharge in accordance with the NPDES Permit

- Demolition and removal of hazardous and non-hazardous building materials and construction-generated wastes

- Proper handling of other demolition and construction related wastes

This draft Plan together with a site-specific health and safety plan may incorporate policies and practices to minimize potential impacts to human health and environment during the demolition and construction phases of ESPR Project.

2.1 SOIL SCREENING LEVELS FOR HYDROCARBON IMPACTED SITES

Soil screening levels are presented in this draft Plan to help project management and field personnel manage hydrocarbon-impacted soil during excavation activities. A waste management plan will therefore enable project management and field personnel to make decisions in the field to efficiently manage excavated soil. Potential options for excavated soil are (1) onsite reuse, (2) offsite soil recycling or offsite disposal at a Class III facility, and (3) offsite disposal at Class I hazardous waste facility. The above options are primarily dependent on the concentrations of TPH and VOCs and approval of site-specific cleanup criteria by a lead regulatory agency. It is anticipated that the LARWQCB would be the lead agency and the City of El Segundo Fire Department would be supplied copies of correspondence to and from LARWQCB. Soil recycling and disposal facilities are listed in Table 2-1.

Hydrocarbon-impacted soil will potentially be encountered during site preparation activities. Sites impacted with petroleum-related products are specifically exempted from the provisions and requirements of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). For hydrocarbon-impacted sites, applicable regulatory requirements are found in the state and federal UST requirements, the California Water Code, California Health and Safety Code, and the applicable Regional Board Water Quality Control Plan. Hydrocarbon-impacted soil may be disposed of at soil recycling facilities and Class III landfills that accept non-hazardous, petroleum-exempt wastes.

In May 1996, the LARWQCB issued guidance on an interim approach for using soil-screening levels to evaluate the need for remediation of hydrocarbon-impacted soils. The approach was developed to evaluate whether a site may require remedial action and at what level of remediation may be required for site closure. The soil screening levels were developed primarily to assess whether soil contamination poses a risk to groundwater, and whether the designated use of the underlying groundwater (i.e., beneficial or non-beneficial use). The interim document was not adopted, but has been used as guidance (LARWQCB, 1996).

The LARWQCB had indicated in Chevron's Cleanup and Abatement Order No. 88-55 that groundwater below the Chevron El Segundo Refinery is not used for beneficial purposes. They did not issue a specific determination for the Old Dune Sand Aquifer below the ESGS. By Regional Board Resolution No. 98-18 adopted on November 2, 1998, the LARWQCB modified the regulatory provisions of the Water Quality Control Plan for the Los Angeles Region by removing the beneficial use designation from two specifically defined areas of groundwater. The groundwater underlying the Chevron facility and the ESGS are included in this designation (LARWQCB, 1999).

TPH, VOC, and PAH concentrations detected at the site are shown in Attachment 1, excerpts from the *Additional Buyer's Due Diligence Investigations: El Segundo Generating Station* (Woodward-Clyde, 1998). For this draft Plan, TPH concentrations in soil were compared to LARWQCB non-beneficial screening criteria, since groundwater may be considered non-beneficial per Regional Board Resolution No. 98-18. For VOCs and PAHs, US EPA Region IX industrial Preliminary Remediation Goals (PRGs) (US EPA, 1999) was used for VOC and PAH cleanup criteria, since the ESGS is zoned for heavy industrial land uses.

These soil criteria are therefore used to consider management options for excavated soil. Soil that will be excavated and managed from beneath Units 1 and 2 may be returned to ground beneath the new Units 5, 6 and 7 during site preparation activities, if it meets the TPH and VOC criteria and is suitable based on geotechnical considerations. The range of potential LARWQCB soil screening levels for the respective groundwater use and the industrial PRGs for selected VOCs and PAHs detected at the site are summarized below:

- TPH (C4-C12 carbon chain range) - 1,000 milligrams per kilogram (mg/kg)
- TPH (C13-C40 carbon chain range) - 10,000 mg/kg
- Benzene – 1.5 mg/kg; toluene – 520 mg/kg; ethylbenzene – 230 mg/kg; and xylenes – 210 mg/kg
- Naphthalene – 190 mg/kg
- Chlorinated VOCs: 1,2-dichloroethane – 0.76 mg/kg; trichloroethene – 6.1 mg/kg; tetrachloroethene (i.e., PCE) – 19 mg/kg; methylene chloride – 21 mg/kg,
- PCBs (not detected in 1998) – 1.0 mg/kg.

The EPA Region IX industrial PRG for benzene in soil was exceeded in a soil sample collected from near the water table in the vicinity of the Paint Shop, near well MW-4S. No other EPA Region IX industrial PRGs for organics in soil, including PCBs and PAHs were exceeded during the Additional Buyer's Due Diligence Investigations (Woodward-Clyde, 1998). Furthermore, TPH criteria for the C4-C12 carbon chain range were exceeded in soil samples collected from near the water table at sample location GP-2, MW-35, MW-3D, and MW-4S (Woodward-Clyde, 1998).

Soil that is deemed not suitable for reuse although the above criteria are met must comply with California Code of Regulations (CCR) Title 22, Section 66261.20. Soil samples used to characterize the soil for onsite or offsite management would be compared to Total Threshold Limit Concentrations (TTLC) and Soluble Threshold Limit Concentrations (STLC) as listed

in CCR Title 22 Section 666261.20. Soil that is less than TTLC criteria, but greater than 10 times the STLC limits would be analyzed using the Wet Extraction Test (WET). If the result of the WET is greater than the listed STLC limits, than the soil represented by the soil sample would be considered a California Hazardous Waste and would therefore be disposed of at a Class I facility.

Soil that exceeds the above criteria may be disposed offsite at a soil recycling facility or Class I hazardous waste depending on the level non-petroleum related hydrocarbons, such as chlorinated VOCs, PCBs, and metals.

2.2 GROUNDWATER SCREENING LEVELS

Groundwater quality data beneath the ESGS and the nearby Chevron El Segundo Refinery is presented in Attachments 1 and 2, respectively. The following VOCs and metals were detected during previous groundwater monitoring events at concentrations that exceed state or federal maximum contaminant levels (MCLs) for beneficial groundwater uses: 1,1-DCA, 1,2-DCA, benzene, ethylbenzene, methyl tert-butyl ether (MTBE), naphthalene, TCE, PCE, cadmium and nickel (Attachment 1). Although groundwater beneath the site is designated as non-beneficial, treatment of groundwater discharges during dewatering will be required by LARWQCB.

NPDES permits for groundwater discharges from construction dewatering projects outline waste discharge criteria. The permits list effluent limitations for VOCs and metals, which may be similar to federal MCLs referenced above, or less stringent to comply with the California Ocean Plan (SWRCB, 1997). It is anticipated that the discharge from the groundwater treatment system for construction dewatering will need to meet the California Ocean Plan standards. A copy of the General NPDES Permit for construction dewatering and the California Ocean Plan are presented in Attachment 3 for reference. A project-specific NPDES permit will need to be obtained for the ESPR Project construction dewatering operations.

3.1 SOIL MANAGEMENT

Previously identified impacted soil will be managed according to the soil management guidelines outlined in Section 2.0 and the procedures described below. The onsite Environmental Coordinator, Health and Safety Officer, and/or Site Manager will coordinate soil management issues in the field. Attachment 1 includes figures that depict the locations of soil borings where hydrocarbon-impacted soil has been identified.

3.1.1 Soil Excavation

During demolition activities, approximately 20,000 to 40,000 cubic yards of soil will be excavated and managed. Hydrocarbon-impacted soil may be encountered beneath the footprint of Units 1 and 2 and the supporting facilities (e.g., transformers and hazardous materials storage vessels). It is anticipated that hydrocarbon-impacted soil will primarily be encountered near the water table. Hydrocarbon vapors emanating from the soil and groundwater may also be encountered. Impacted soil encountered during demolition will be characterized and disposed in accordance with LORS and this draft Plan. Contaminated soil will be segregated, sampled, and tested in order to determine appropriate disposal and treatment options. If the soil exceeds the screening criteria provided in Section 2.0, or is classified as hazardous (according to Resource Conservation and Recovery Act [RCRA] and CCR Title 22), the City of El Segundo Fire Department and the Los Angeles County, Department of Hazardous Materials Division will be notified, and the soil will be hauled to a Class I landfill or other appropriate soil treatment and recycling facility, if acceptable. Non-RCRA hazardous soil and non-hazardous (petroleum-exempt) soil may be disposed of at a soil treatment and recycling facility if RCRA listed compounds (e.g., PCBs, carcinogenic PAHs, and some chlorinated VOCs) are not detected. It is anticipated that less than 20,000 cubic yards of soil will require offsite management.

Site management and equipment operators will survey the work area at the beginning of each workday and routinely throughout each day during demolition and construction operations to check for the presence of potentially impacted soil and contaminant sources. Equipment operators, management, and other field personnel should be notified of any potential impacted soil and contaminant sources within the work area. These locations should be clearly marked with paint, flagging, etc.

Hydrocarbon-impacted soil can be identified in the field by the following:

- Petroleum odor.
- Darker color than surrounding soil.
- Screening with an organic vapor analyzer (OVA) or other field equipment if available.

If potentially impacted soil is identified, the presence of contaminants should be verified by taking the following steps:

1. Stop operations in the vicinity of the suspected impacted soil.

2. Collect a surface-soil sample with hand auger equipment or stainless steel trowel in two stainless steel tubes or 8 ounce glass jars at location(s) where visual contamination is present. Sampling equipment and containers shall be decontaminated prior to sampling. Seal sample tubes with Teflon™ tape and plastic caps, or seal jars with lids.

3. Store samples on ice within sealed Ziploc™ bags in a chilled cooler maintained at approximately 4° C prior to analysis.

4. Site management and field personnel should use their best judgement to assess whether additional sampling and analysis is needed to delineate the extent of encountered impacted soil, including those cases where the field observations and laboratory TPH results suggest increasing concentration trends laterally. The objective of the excavation activities is not to remediate contaminated soil beyond the defined project limits, but to prepare the area for new construction.

3.1.2 Soil Storage

Excavated soil will be stored on plastic sheeting and covered with plastic sheeting at the end of each day. Berms will be placed around the soil stockpiles to minimize the contact of stormwater and site runoff from contacting the soil piles. Temporary control ditches will be constructed to channel soil pile leachate toward a collection sump where leachate will collect. Soil pile leachate will be transferred to the proposed onsite construction dewatering treatment system storage tank. The sumps shall be constructed to facilitate removal of any accumulated liquid by a transfer pump.

Air emission monitoring shall be conducted in accordance with the South Coast Air Quality Management District 1166 permit and the site health and safety plan. Records of daily calibration and readings shall be submitted to the On-site Coordinator at the end of each workday. Stockpiles shall be kept covered to the extent practicable. The Contractor shall monitor and maintain the stockpile to prevent odorous and dust emissions in accordance with LORS.

3.1.3 Verification Sampling

The onsite Environmental Coordinator, Health and Safety Officer, and/or Site Manager will coordinate the sampling and analysis of the excavated soil. Samples will be collected and analyzed as follows:

1. Collect one four point composite sample will be collected every 1,000 cubic yards of soil excavated. Samples should be collected from soil suspected of being most impacted as evident by odors or potential staining, if present. Collect samples with hand auger equipment or a stainless steel trowel and transfer soil into stainless steel tubes or 8 ounce glass jars (2 per location). Sampling equipment and containers shall be decontaminated prior to sampling. Seal sample tubes with Teflon™ tape and plastic caps, or seal jars with lids.

2. Store samples on ice within sealed Ziploc™ bags in a chilled cooler maintained at approximately 4° C prior to analysis. Submit samples to a State-certified laboratory under chain-of-custody documentation.

3. Analyze soil samples using EPA Method 8015 Modified for TPH-cc, EPA Method 8260 for VOCs, and EPA Method 8310 for PAHs by a State-certified laboratory.

4. Soil that exceeds the screening criteria will be managed offsite. TPH, VOC, and PAH data will be used to profile the soil for disposal purposes. The composite sample collected from soil exceeding the criteria will also be analyzed for CCR Title 22 metals using EPA Method 6010. Metals analysis will be required for profiling purposes. If the concentrations of any CCR Title 22 metals are greater than TTLC or STLC criteria, the soil will be considered a California hazardous waste and therefore disposed of at a Class I facility.

3.1.4 Soil Disposal

Existing non-hazardous solid waste disposal facilities in the general area of the ESPR Project are listed in Table 2-1. Three available Class III landfills are listed in Table 5.14-1; they are located in Corona (El Sobrante), Simi Valley (Simi Valley Landfill), and Orange County (Frank R. Bowerman), California, respectively. They accept non-hazardous soil.

There are several soil treatment and soil recycling facilities in southern California that accept hydrocarbon-impacted soil that is classified by the generator as a non-hazardous waste per RCRA and CCR Title 22. Acceptable levels for treatment or recycling are established by the individual facilities. Three soil treatment and/or recycling facilities listed in Table 2-1 are

located in Lynwood (American Remedial Technologies), Adelanto (TPS Technologies, Inc.), and Azusa (Thermal Remediation Systems), California.

Hazardous waste generated at the power plant will be taken offsite for recycling or disposal by a permitted hazardous waste transporter to a permitted treatment, storage, and disposal facility or Class I landfill. There are three Class I landfills located in California, including Laidlaw Environmental's Buttonwillow Landfill in Kern County, Laidlaw's landfill in Imperial County, and Chemical Waste Management's Kettleman Hills Landfill in King County. The permitted, operating, and remaining capacities of these landfills are described in Table 2-1.

3.2 GROUNDWATER MANAGEMENT

3.2.1 Dewatering

Hydrocarbon-impacted groundwater will be encountered during demolition and construction phase dewatering. Notification to the LARWQCB and DTSC, who have overseen previous assessment and remediation activities at this site related to onsite and offsite soil and groundwater contamination sources, will be required prior to excavation activities. The LARWQCB oversees ongoing groundwater management activities at the Chevron El Segundo Refinery. Coordination with Chevron will be necessary to develop the best dewatering program to lower the water table to the desired depth without reducing the effectiveness of the ongoing groundwater management program at the El Segundo Refinery.

The characteristics of the underlying shallow aquifer suggest that high pumping rates on the order of 500 to 5000 gallons per minute (720,000 gallons per day to 7.2 million gallons per day [MGD]), or greater may be required in order to draw down the groundwater elevation by 14 feet throughout the perimeter of Units 1 and 2. The perimeter of Units 1 and 2 is assumed to be 250 feet by 250 feet. This range assume that groundwater would be extracted from an unconfined aquifer with a hydraulic conductivity ranging between 0.001 to 0.01 centimeters per second. The extraction of groundwater at these rates might adversely impact the Chevron El Segundo Refinery groundwater management program without dewatering controls. Therefore, dewatering controls are included to ensure that there are no potential adverse impacts to the Chevron El Segundo Refinery groundwater management program.

As one option for dewatering controls, sheet piling or a slurry wall may be installed around the perimeter of Units 1 and 2 to reduce the amount of groundwater that would be removed and managed during demolition-and construction-phase dewatering. The sheet piling would extend to approximately 40 feet below grade. Dewatering would continue during the removal of the Units 1 and 2 foundations and soil to 20 feet below grade, subsequent

replacement of fill to the top of the original water table, and the installation of any piping and structures below the original water table.

As a second option for dewatering control, demolition excavation activities may proceed in phases to remove Units 1 and 2 foundations. Temporary sheet piling would be used to isolate areas where excavation and dewatering is needed to minimize the volume of extracted groundwater. The temporary sheet piling could extend to approximately 30 feet below grade. The sheet piling would remain in place and dewatering could continue until fill material is replaced in the respective, isolated area. This phased approach would continue until the demolition of foundations and structures below the water table is completed, fill material replaced, and new piping and structures are installed that are proposed below the original water table.

It is anticipated that the installation of a sheet pile or slurry wall around the perimeter of Units 1 and 2, or the installation of temporary sheet piles around smaller isolated areas during demolition and construction will significantly reduce the volume of groundwater during dewatering. It is further anticipated that the dewatering rate may be reduced to levels less than 500 gallons per minute. Aquifer testing and analysis will be conducted as part of the subsurface geotechnical investigation outlined in Appendix G of the AFC. Aquifer testing and analysis will provide the necessary to more accurately estimate the dewatering rate and select the dewatering controls.

Demolition and construction phase dewatering are anticipated to take up to 45 days each. Therefore, the total volume range of groundwater that may extracted during dewatering is 13 to 65 MG.

3.2.2 Groundwater Treatment

Groundwater will be treated to NPDES limitations by granular activated carbon (GAC) to remove dissolved-phase hydrocarbons. Carbon adsorption using GAC is a proven technology for the removal of dissolved phase gasoline and diesel and the volatile constituents of these fuels, including benzene, toluene, ethylbenzene, and xylenes and PAHs. GAC will also remove chlorinated hydrocarbons including 1,2-DCA, TCE, and PCE which have been detected. GAC does not have a strong affinity for oxygenate fuel additives such as MTBE. A second adsorption media consisting of clay is recommended to remove MTBE and other fuel oxygenates that may be present.

The mass of GAC and clay media needed during the proposed 90 day dewatering program was estimated from a pumping rate of 500 gallons per minute and assuming the following average hydrocarbon concentrations: TPH at 50 milligrams per liter (mg/L) and MTBE at 1 mg/L. GAC and clay adsorption efficiency was estimated to be 5 percent. Using the above

assumptions, more than 500,000 pounds or fifty change-outs of 10,000-pound GAC vessels would be needed. For oxygenate removal, approximately two 10,000-pound clay media vessels would be needed. Eight GAC vessels would be connected at a time, four vessels each in parallel. Two clay media vessels would also be connected in parallel, after the GAC vessels. Sample ports will be placed between each vessel and after the last vessel to collect samples for NPDES compliance monitoring.

Dual media sand filters are recommended to remove settleable and suspended solids before the GAC vessels. Two filters would be connected in parallel. The filters would be equipped with a backwash system to periodically remove settleable and suspended solids. Treated groundwater would be used for backwashing. The solids would be managed in accordance with Section 3.2.1 above.

3.2.3 Compliance Monitoring

Compliance monitoring would be conducted approximately daily during the first one to two weeks of operation and then weekly thereafter. Samples will be collected from the effluent and analyzed for parameters listed in the NPDES permit. It is anticipated that discharge will need to meet the 1997 criteria specified in the California Ocean Plan (SWRCB, 1997). Copies of the General NPDES permit for construction dewatering and the California Ocean Plan are included in Attachment 3.

Daily samples will be collected between the second and third GAC vessels in series to estimate the breakthrough of the carbon vessels. The samples will be analyzed for VOCs by EPA Method 8260. It is anticipated that four vessels will be used per week during the dewatering. The vessels will be rotated such that fresh GAC vessels are placed at the back of the process stream. Up to two clay media changeouts are expected based on the mass of oxygenates.

This plan provides: (1) a description of the waste streams that are anticipated during construction of the ESPR Project; (2) a description of the practices planned to manage the project waste streams; and (3) an identification of the mitigation measures to avoid any substantial, adverse environmental impacts from the management of project wastes.

4.1 ANTICIPATED WASTE STREAMS

4.1.1 Demolition Wastes

Non-Hazardous Waste. Solid waste generated from demolition activities will include scrap metal, glass, concrete foundations, concrete stacks, asphalt, lumber, plastic, and empty non-hazardous containers. Soil that may be impacted with hydrocarbons will also be generated during foundation removals and site grading activities. Management of these wastes will be the responsibility of the contractor(s). Typical management practices by the appropriate contractor include recycling when possible, proper storage of waste to prevent wind dispersion, and routine pick-up and disposal of waste to approved local Class III landfills.

Hazardous Waste. Prior to the acquisition of ESGS by El Segundo LLC, SCE was in the process of implementing a 5-year plan to remove Asbestos Containing Materials (ACM) from Units 1 through 4. It is estimated that approximately 60 percent of the ACM have been removed. Preliminary estimates of the amount of ACMs and RBMs are included in Tables 4-1 and 4-2. By the summer of 2001 it is anticipated that 90 percent of the ACMs will be removed. The extent of Regulated Building Materials (RBM) that contain lead-based paint has not been quantified. The assessment and the removal of a majority of the RBMs will be completed by June 2001. Hazardous waste associated with the removal of the remaining ACM and RBMs is anticipated during demolition activities. Air monitoring and project inspection, including the execution of clearance protocols and procedures, will be included in the asbestos abatement oversight during the demolition phase for the safe removal of identified and unknown ACMs.

4.1.2 Construction Wastes

Table 4-3 summarizes the anticipated waste streams generated during construction, along with appropriate management methods for treatment or disposal.

Non-Hazardous Waste. Solid waste generated from construction activities may include lumber, plastic, scrap metal and glass, asphalt, excess concrete, and empty non-hazardous containers. Management of these wastes will be the responsibility of the contractor(s). Typical management practices by the appropriate contractor include recycling when possible, proper storage of waste to prevent wind dispersion, and routine pick-up and disposal of waste to approved local Class III landfills.

Hazardous Waste. Small quantities of hazardous wastes will possibly be generated over the course of construction. These wastes may include waste paint, spent construction solvents, and spent welding materials. Hazardous wastes generated during facility construction and operation will be handled and disposed of in accordance with applicable LORS. Hazardous wastes will be either recycled or disposed of in a licensed Class I disposal facility, as appropriate. Managed and disposed of properly, these wastes will not cause significant environmental or health and safety impacts. Most of the hazardous waste, such as HRSG cleaning wastes and used oil, generated during construction can be recycled.

Wastewater. Wastewater generated during construction of the new plant will include sanitary wastes, equipment wash water, treated groundwater from construction dewatering, and stormwater runoff (Table 4-3). Construction-related wastewater will be managed in a manner similar to wastewater from demolition activities, described above.

Offsite Structures. During the installation of offsite water supply, wastewater, and aqueous ammonia pipelines, non-hazardous soils and surface demolition debris (e.g., concrete, asphalt, and piping) are anticipated. These wastes may be transported and disposed at a Class III facility. If contaminated soils are encountered during installation of water supply pipelines, these soils will need to be managed in accordance with applicable LORS. Soil sampling will likely be required to characterize the waste. Soil may be recycled or disposed as a non-hazardous waste at a Class III landfill or soil recycling facility, or disposed as hazardous waste at a Class I landfill. The disposal option will depend on the characterization of the waste per RCRA and CCR Title 22 criteria.

4.2 CONSTRUCTION WASTE DISPOSAL

Surface Water Runoff. Stormwater runoff that may be generated during construction activities will be discharged to a stormwater detention basin in accordance with state and local regulatory requirements and the stormwater NPDES permit requirements applicable to the project.

Equipment wash water will be contained at specifically designated wash areas and transported to a wastewater treatment facility via a licensed vacuum truck contractor.

Non-Hazardous Construction Materials. Non-hazardous, construction materials including, but not limited to, scrap metals, miscellaneous steel, asphalt, concrete, wood forms, insulation and other miscellaneous construction materials, will be hauled to permitted landfills or recycling areas, if applicable, for disposal. The three landfills listed in Table 2-1 are within 50 miles of ESGS.

Sanitary Wastewater. Construction related sanitary wastes will be handled by chemical toilets that will be serviced by a licensed contractor who will ship wastes to a sanitary treatment plant.

Hazardous Wastes. Hazardous wastes generated during construction are expected to consist of waste paint, solvents, adhesives, empty hazardous material containers, oily rags, oil absorbents, and used oils. All recyclable hazardous materials such as spent lead acid batteries, oil filters and used oils will be properly labeled and stored in 55-gallon drums or larger containers and shipped to a licensed recycling facility within 90 days of generation. The existing Hazardous Waste Storage facility at ESGS may be used to temporarily store waste pending offsite disposal. There are several liquid and solid hazardous waste facilities that may be used, which are listed in Table 2-1.

Construction hazardous wastes that are not recycled will be collected stored, labeled, packaged, transported, and disposed of at a Class I Hazardous Waste Disposal Facility in accordance with state and Federal regulatory requirements. All wastes must be analyzed and profiled prior to disposal. Class I Hazardous Waste landfills available for use in California are listed in Table 2-1.

4.3 PROPOSED MITIGATION MEASURES

The ESPR Project plans to implement the following mitigation measures during construction to manage the waste streams generated by the ESPR Project, and therefore minimize any adverse environmental impacts that might otherwise result from the generation, handling, and disposal of the wastes.

- Demolition and construction contractors will receive hazardous materials training. Additionally, employees will be trained in field identification of contaminated soil and groundwater, procedures for handling contaminated soil and groundwater, spill contingencies, and waste minimization procedures.

- Temporary control ditches will be constructed to channel soil pile leachate, stormwater, and site runoff during construction. Soil pile leachate will be directed to the proposed onsite construction dewatering treatment system. Stormwater runoff and site runoff not in contacted with impacted groundwater or soil pile leachate will be directed to existing oil/water separator and discharged in the existing outfall structures. Offsite discharge of treated groundwater and storm and site runoff will be conducted in compliance with the appropriate NPDES permits.

- Construction waste will be collected and disposed of or recycled at an authorized, off-site facility in compliance with LORS

- Sanitary waste produced during construction will be collected and disposed of at an appropriate off-site facility.

- Recycling of waste during construction will be maximized.

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TABLE 2-1

WASTE RECYCLING/DISPOSAL FACILITIES

Liquid Recycling/Waste Disposal Site	Title 23 Class	Permitted Capacity	Operating Capacity	Remaining Capacity	Estimated Closure Date	Enforcement Action Taken?
El Sobrante Landfill (Solids Disposal) 10910 Dawson Canyon Rd. Corona, CA 92883	Class III	4,000 tons per day	4,000 tons per day	50 years	2050	No
Simi Valley Landfill (Solids Disposal) 2801 Madera Rd. Simi Valley, CA 93065	Class III	4,000 tons per day	4,000 tons per day	20 to 50 years	2020 - 2050	No
Frank R. Bowerman Landfill 11002 Bee Canyon Access Road Irvine, CA 92602	Class III	117 million cyd/year	8500 tons per day	84.1 million cyd	2024	Yes
Waste Management Kettleman Hills Landfill (Solids Disposal) 36251 Old Skyline Rd. Kettleman City, CA 93239	Class I	10.7 million cyd/year	Current Operating Capacity Not Available	8 million cyd	2037 – 2038	No
Laidlaw Buttonwillow Landfill (Solids Disposal) Kern County, CA	Class I	13 million cyd/year	130,000 – 150,000 cyd/year	11 million cyd	2068 – 2078	No
Laidlaw Imperial County Landfill (Solids Disposal) Imperial County, CA	Class I	4 million cyd/year	110,000 cyd/year	2.9 million cyd	2021	No
Thermal Remediation Solutions (Solids Recycling) 1211 West Gladstone Ave. Azusa, CA 91702	Class III	200,000 tons per year	2,000 tons per day	Not applicable	Not applicable	No
TPS Technologies, Inc. (Soil Recycling) 12328 Hibiscus Ave. Adelanto, CA 92301	Not Applicable	Not Applicable	350,000 tons per year	Not Applicable	Not Applicable	No outstanding previous violation

TABLE 2-1

(CONTINUED)

Liquid Recycling/Waste Disposal Site	Title 23 Class	Permitted Capacity	Operating Capacity	Remaining Capacity	Estimated Closure Date	Enforcement Action Taken?
American Remedial Technologies (Solids Recycling) 2680 Seminole Ave. Lynwood, CA 90262	Class III	200,000 tons per year	19,900 tons per month	Not applicable	Not applicable	One Notice of Violation pertaining to odor in Year 2000
DeMenno/Kerdoon (Liquids Recycling) 2000 N. Alameda St. Compton, CA 90222	Not applicable	84.1 million gallons per year of oily and 123 million gallons per year of waste oil	~30,000,000 gallons per year	Not applicable	Not applicable	Not from lead agency in past 2 years and no outstanding previous violations

TABLE 4-1

ASBESTOS CONTAINING MATERIALS – UNIT #1

Component/ Item/Area	Level	ACM (Y/N)	Type	Est. Quantity	Additional Samples
STEAM GENERATOR AND AUXILIARY EQUIPMENT (above turbine deck)					
Boiler, Piping & Ducting	7	No	Blue bands (abated)	N/A	3-9
Stack	7 up	Yes	Painted Coating (peeling w/lead)	14'x 110'= **1,540 SF**	3
Air Ejectors	3	Yes	Cal/mag and mud	**50 LF** 6"-12" diam.	-
De-aerator, recirc. tank, storage tank, flash tank	3	No	N/A	N/A	-
Burning cleaning station	3	Yes	Transite panels/putty	**900 SF**	-
Elevator shaft	G-7	Yes	Transite panels/putty	54'x 140' = **7,560 SF**	-
Chart recorder shack	6	Yes	Transite panels/putty	**633 SF**	-
Penthouse	7	Unknown/assume	Blocks and spray-applied	**36'x 36' x 20' inaccessible space**	6
Air pre-heaters	3	No	N/A	N/A	-
Control room (1st, 2nd & roof)	3-5	Yes/assume	SCT(2), ACT/M(2), floors(4), tar/gravel, PM	25'x 60' CMU building w/2 floors **SCT/ACT–3,000 SF Floors–3,000 SF Roof-1,500 SF**	48
STEAM GENERATOR AND AUXILIARY EQUIPMENT (below turbine deck)					
Boiler - lower dead air space (internal)	2	Yes	Block (deteriorated)	**Unknown 2(5'x 60'x 15' inaccessible space)**	-
Gas recirc. fan & ducts	G	Yes-confirm	Mud & wire	2 each (30'x 30' x 40')=**7,200 SF**	3
Blowdown tank	G	No	N/A	N/A	-

TABLE 4-1

(CONTINUED)

Component/ Item/Area	Level	ACM (Y/N)	Type	Est. Quantity	Additional Samples
DRAFT SYSTEM					
Forced draft fans	G	No	N/A	N/A	-
Induced draft fans (N&S)	G-2	Yes	Mud & cloth	2 each (20'x 30'x 30')= **3,600 SF**	-
Induced draft ducts (N&S)	G-2	Yes	Mud & cloth	2 each (30'x 15'x 30')= **9,000 SF**	-
Air pre-heaters (N&S)	2	Yes	Mud & cloth	2 each (25'x 15'x 10')=**3,750 SF**	-
FUEL SYSTEM					
Fuel gas piping, oil piping, oil heaters, oil pumps	G	No	Blue bands (abated)	N/A	-
Reboiler	G	No	Bare metal	N/A	-
CONDENSATE AND FEEDWATER SYSTEM					
1st point feedwater heaters (E&W)	2	Yes	Mud & wire	2(30'x 15.7') + 2(19.62')=**981.24 SF**	-
2nd point feedwater heaters (E&W)	2	Yes	Mud & wire	2(30'x 15.7') + 2(19.62')=**981.24 SF**	-
3rd point feedwater heater	2	Unknown/assume	Mud & wire	(25'x 15.7') + (19.62')=**412.12 SF**	3
4th point feedwater heater	2	Unknown/assume	Mud & wire	(25'x 15.7') + (19.62')=**412.12 SF**	3
Evaporator condenser (1 per unit)	2	Yes	Mud & wire	(20'x 12.56') + (12.56')=**263.76 SF**	-
Boiler feed pumps (inside barrel housing)	G	Unknown/assume	Unknown	5 @ 80 SF each=**400 SF**	3
Condensate booster pumps	G	No insulation	N/A	N/A	-

TABLE 4-1

(CONTINUED)

Component/ Item/Area	Level	ACM (Y/N)	Type	Est. Quantity	Additional Samples
TURBINE (above and below the deck)					
Turbine housing	3	Unknown (not likely)	Sound deadener (hard spray-on)	Unknown	5
Other areas	2-3	Not likely-confirm	Blankets	N/A	3
CHEMICAL LAB AND LOCKER ROOM					
Counter tops	G	Unknown/assume	Possible Resin	**40 SF**	3
Ceiling tiles	G	Unknown/assume	1'x 1'/M, 2'x 4'	**400 SF**	6
Flooring	G	Unknown/assume	9"x 9"/M, 12"x 12"/M	**400 SF**	12
EXTERIOR					
Wall plaster	G	Unknown/assume	3 coat on lath	**5,000 SF**	5
Exterior wall vents-north and west	G	Yes	Transite panels	**1,770 SF**	-
ADMINISTRATION BUILDING					
Offices	G	Unknown/assume	2'x 4' SCT, WB/JC, HP, 12" VFT/M, SV, rolled roofing, pen. mastic	65'x 80' CMU building **SCT-5,200 SF Flooring-5,200 SF WB/JC-10,000 SF Roof-5,200 SF**	30
MAINTENANCE SHOP AND WAREHOUSE					
Miscellaneous	G	Unknown	1'x 1' ACT/M (2), 2'x 4' SCT, WB/JC, HP, roofing, pen. mastic	**ESTIMATED SCT/ACT-4,000 SF WB/JC-5,000SF HP-5,000 SF Roof-10,000 SF**	27

TABLE 4-1

(CONTINUED)

Component/ Item/Area	Level	ACM (Y/N)	Type	Est. Quantity	Additional Samples
FUEL OIL TANK AREA (south)					
Tank sidings	35'-40'	Yes	Transite panels	2 @ 16,000 SF = **32,000 SF**	-
Displacement oil heater	G	Unknown/not likely	Insulation	Unknown	6
Displacement oil tank	G	No	Bare metal	N/A	-

Assumptions:

Any of the painted metal components, features and fixtures should be assumed to contain lead. All loose, blistered or flaking paint is considered hazardous waste by regulation, and shall be handled accordingly in conjunction with the demolition sequence. Assuming that all or most of the metal will be subject to some form of recycle/reuse as opposed to actual disposal, the remaining painted surfaces in good condition are considered a demolition item and should be handled by the demolition contractor with regard for all applicable worker safety, training and PPE regulations or requirements, including notification to the "receiver" of said materials that lead-based paint is present.

TABLE 4-2

ASBESTOS CONTAINING MATERIALS – UNIT #2

Component/ Item/Area	Level	ACM (Y/N)	Type	Est. Quantity	Samples
STEAM GENERATOR AND AUXILIARY EQUIPMENT (above turbine deck)					
Boiler, Piping & Ducting	7	No	Blue bands (abated)	N/A	3-9
Stack	7 up	Yes	Painted Coating (peeling w/lead)	14'x 110'= **1,540 SF**	3
Air Ejectors	3	Yes	Cal/mag and mud	**50 LF 6"-12" diam**.	-
De-aerator, recirc. tank, storage tank, flash tank	3	No	N/A	N/A	-
Burning cleaning station	3	Yes	Transite panels/putty	**900 SF**	-
Chart recorder shack	6	Yes	Transite panels/putty	**633 SF**	-
Penthouse	7	Unknown/assume	Blocks and spray-applied	Unknown (36'x 36' x 20' inaccessible space)	6
Air pre-heaters	3	No	N/A	N/A	-
STEAM GENERATOR AND AUXILIARY EQUIPMENT (below turbine deck)					
Boiler - lower dead air space (internal)	2	Yes	Block (deteriorated)	Unknown (25'x 60'x 15' inaccessible space)	-
Gas recirc. fan & ducts	G	Yes-confirm	Mud & wire	2 each (30'x 30' x 40')=**7,200 SF**	3
Blowdown tank	G	No	N/A	N/A	-

TABLE 4-2

(CONTINUED)

Component/ Item/Area	Level	ACM (Y/N)	Type	Est. Quantity	Samples
DRAFT SYSTEM					
Forced draft fans	G	No	N/A	N/A	-
Induced draft fans (N&S)	G-2	Yes	Mud & cloth	2 each (20'x 30'x 30')= **3,600 SF**	-
Induced draft ducts (N&S)	G-2	Yes	Mud & cloth	2 each (30'x 15'x 30')= **9,000 SF**	-
Air pre-heaters (N&S)	2	Yes	Mud & cloth	2 each (25'x 15'x 10')=**3,750 SF**	-
FUEL SYSTEM					
Fuel gas piping, oil piping, oil heaters, oil pumps	G	No	Blue bands (abated)	N/A	-
Reboiler	G	No	Bare metal	N/A	-
CONDENSATE AND FEEDWATER SYSTEM					
1st point feedwater heaters (E&W)	2	Yes	Mud & wire	2(30'x 15.7') + 2(19.62')=**981.24 SF**	-
2nd point feedwater heaters (E&W)	2	Yes	Mud & wire	2(30'x 15.7') + 2(19.62')=**981.24 SF**	-
3rd point feedwater heater	2	Unknown/assume	Mud & wire	(25'x 15.7') + (19.62')=**412.12 SF**	3
4th point feedwater heater	2	Unknown/assume	Mud & wire	(25'x 15.7') + (19.62')=**412.12 SF**	3
Evaporator condenser (1 per unit)	2	Yes	Mud & wire	(20'x 12.56') + (12.56')=**263.76 SF**	-
Boiler feed pumps (inside barrel housing)	G	Unknown/assume	Unknown	**5 @ 80 SF each=400 SF**	3
Condensate booster pumps	G	No insulation	N/A	N/A	-

TABLE 4-2

(CONTINUED)

Component/ Item/Area	Level	ACM (Y/N)	Type	Est. Quantity	Samples
TURBINE (above and below the deck)					
Turbine housing	3	Unknown (not likely)	Sound deadener (hard spray-on)	Unknown	5
Other areas	2-3	Not likely-confirm	Blankets	N/A	3
EXTERIOR					
Auxiliary piping from Unit 2 to 3 under crossover bridge	G	Yes	Pipe insulation	May not be impacted-no quantity at this time	-

Assumptions:

Any of the painted metal components, features and fixtures should be assumed to contain lead. All loose, blistered or flaking paint is considered hazardous waste by regulation, and shall be handled accordingly in conjunction with the demolition sequence. Assuming that all or most of the metal will be subject to some form of recycle/reuse as opposed to actual disposal, the remaining painted surfaces in good condition are considered a demolition item and should be handled by the demolition contractor with regard for all applicable worker safety, training and PPE regulations or requirements, including notification to the "receiver" of said materials that lead-based paint is present.

TABLE 4-3

SUMMARY OF CONSTRUCTION WASTE STREAMS AND MANAGEMENT METHODS[1]

Waste Stream	Waste Classification	Amount	Treatment
Scrap wood, steel, glass, plastic, paper, calcium, silicate insulation, mineral wood insulation, asphalt, concrete	Non-hazardous	20-40 cu yd/wk	Waste disposal facility or recycle
Empty hazardous material containers – drums	Recyclable Hazardous	1 cu yd/wk	Recondition or recycle
Used and waste lube oil during CT and ST Lube Oil Flushes	Recyclable Hazardous	<55 gallons per flush period, approximately 3 week duration	Recycle
Oil absorbent mats from CT and ST lube oil flushes and normal construction	Non-hazardous	<1000 sq.ft/month, as needed	Waste disposal facility or laundry (permitted to wash rags)
Oily rags generated during normal construction activities lube oil flushes	Non-hazardous	3-4 55 gallon drums a month	Waste disposal facility or laundry (permitted to wash rags)
Spent batteries; lead acid	Hazardous	2 batteries/year	Recycle
Spent batteries; alkaline type, Sizes AAA, AA, C and D	Hazardous Recyclable	60 batteries/month	Recycle
HRSG and Preboiler Piping cleaning waste	Hazardous	200,000 gal per cleaning	Hazardous waste disposal facility or recycle
Used oil from oil/water separator	Recyclable Hazardous[2]	<1000 gal/year	Recycle
Sanitary Waste-Portable Chemical Toilets and Construction Office Holding Tanks	Sanitary	600 gpd	Pumped by licensed contractors and transported to sanitary water treatment plant
Construction wastewater from dewatering operations	Non-hazardous	65 million gallons	Carbon absorption and discharged under MPDES permit

TABLE 4-3

(CONTINUED)

Waste Stream	Waste Classification	Amount	Treatment
Granular Activated Carbon	Non-hazardous Recyclable	Exchange 40,000 pounds of carbon per week (4 vessels)	Regenerated by the carbon supplier at their waste disposal facility
Soil	Recyclable Non-hazardous Hazardous (TBD)	20,000 cubic yards	Soil recycling facility or Class I or III facility

[1] All numbers are estimates
[2] Under California regulations